

ESD Energy Resources Program Publications, 2007–2011

The following lists include those documents (journal articles, books, book chapters, conference papers, reports) associated with the Energy Resources Program within LBNL's Earth Sciences Division that changed their publication status from “submitted/in review” to “accepted” or “in press,” or that were published (and have a completed citation), during the period from January 1, 2007, through December 31, 2011.

2011

Energy Resources Peer-Reviewed Journal Articles and Book Chapters for 2011

1. Commer, M. (2011), Three-dimensional gravity modeling and focusing inversion using rectangular meshes. *Geophysical Prospecting*, 59 (5), 966–979; DOI: 10.1111/j.1365-2478.2011.00969.x. LBNL-4906E.
2. Commer, M., F.R.N. Maia, and G.A. Newman (2011), Iterative Krylov solution methods for geophysical electromagnetic simulations on throughput-oriented processing units. *International Journal of High Performance Computing Applications*, DOI: 10.1177/1094342011428145. LBNL-5079E.
3. Elliott, S.M., M. Maltrud, M.T. Reagan, G.J. Moridis, and P.J. Cameron-Smith (2011), Marine methane cycle simulations for the period of early global warming. *Journal of Geophysical Research–Biogeosciences*, 116, G01010; DOI: 10.1029/2010JG001300. LBNL-4239E.
4. Finsterle, S., and Y. Zhang (2011), Solving iTOUGH simulation-optimization problems using the PEST protocol. *Environmental Modelling and Software*, 26, 959-968. LBNL-4410E.
5. Kneafsey, T.J., H. Liu, W. Winters, R. Boswell, R. Hunter, and T.S. Collett, (2011), Examination of core samples from the Mount Elbert Gas Hydrate Stratigraphic Test Well, Alaska North Slope: Effects of retrieval and preservation. *Marine and Petroleum Geology*, 28(2), 381-393; DOI: 10.1016/j.marpetgeo.2009.10.009. LBNL-5134E.
6. Moridis, G. J., S. Silpngarmlert, M. T. Reagan, T.S. Collett, and K. Zhang (2011), Gas production from a cold, stratigraphically bounded gas hydrate deposit at the Mount Elbert Gas Hydrate Stratigraphic Test Well, Alaska North Slope: Implications of uncertainties. *Marine and Petroleum Geology*, 28 (2), 517–534; DOI:10.1016/j.marpetgeo.2010.01.005. LBNL-3005E.
7. Moridis, G., and M.T. Reagan (2011), Estimating the upper limit of gas production from Class 2 hydrate accumulations in the permafrost: 1. Concepts, system description, and the production base case. *Journal of Petroleum Science and Engineering*, 76 (3), 194–204; DOI:10.1016/j.petrol.2010.11.023. LBNL-1615E.
8. Moridis, G., and M.T. Reagan (2011), Estimating the upper limit of gas production from Class 2 hydrate accumulations in the permafrost: 2. Alternative well designs and sensitivity analysis. *Journal of Petroleum Science and Engineering*, 76 (4), 124–137; DOI: 10.1016/j.petrol.2010.12.001.LBNL-4272E.

9. Moridis, G.J., T.S. Collett, M. Pooladi-Darvish, S. Hancock, C. Santamarina, R. Boswell, T. Kneafsey, J. Rutqvist, M. Kowalsky, M.T. Reagan, E.D. Sloan, A.K. Sum and C. Koh (2011), Challenges, uncertainties and issues facing gas production from gas hydrate deposits. SPE Reservoir Evaluation and Engineering, Paper SPE-131792. LBNL-4254E.
10. Nihei, K.T., S. Nakagawa, F. Reverdy, L.R. Meyer, L. Duranti, and G. Ball (2011), Phased array compaction cell for measurement of the transversely isotropic elastic properties of compacting sediments. Geophysics, 76 (3), WA113–WA123. LBNL-4928E.
11. Reagan, M., G. Moridis, S. Elliott, and M. Maltrud (2011), Contribution of oceanic gas hydrate dissociation to the formation of Arctic Ocean methane plumes. Journal of Geophysical Research—Oceans, 116, C09014; DOI: 10.1029/2011JC007189. LBNL-5145E.
12. Rees, E.V.L., T.J. Kneafsey, and Y. Seol (2011), Methane hydrate distribution from prolonged and repeated formation in natural and compacted sand samples: X-ray CT observations. Journal of Geological Research, 2011, ID791815; DOI: 10.1155/2011/791815. LBNL-5029E.

Energy Resources Conference Papers, 2011

1. Kneafsey, T.J., and G.J. Moridis (2011), Methane hydrate dissociation by depressurization in a Mount Elbert sandstone sample: Experimental observations and numerical simulations. Paper 22150-MS, OTC Arctic Technology Conference, Houston, Texas, Feb. 7-9, 2011. LBNL-4936E.
2. Majer, E.L., et al. (2011), Workshop on induced seismicity due to fluid injection/production from energy-related applications. Special Workshop Held at Stanford University, Bechtel Conference Center, February 4, 2011. LBNL-4595E.
3. Reagan, M., G. Moridis, S. Elliott, M. Maltrud, and P. Cameron-Smith (2011), Basin scale assessment of gas hydrate dissociation in response to climate change. Proceedings of the 7th International Conf. on Gas Hydrates (ICGH 2011), Edinburgh, U.K., July 17–21, 2011. LBNL-5144E.
4. Saltiel, S., K. Boyle, and E. Majer (2011) Challenges in determining b value in the Northwest Geysers. Special Workshop Held at Stanford University, Bechtel Conference Center, February 4, 2011. LBNL-4594E.

Energy Resources Reports, 2011

1. Freifeld, B., and S. Finsterle (2011), Imaging Fluid Flow in Geothermal Wells Using Distributed Thermal Perturbation Sensing. LBNL Report, Berkeley, California. LBNL-4588E.
2. Kneafsey, T.J., and E.V.L. Rees (2011), X-ray CT Observations of Methane Hydrate Distribution Changes over Time in a Natural Sediment Core from the BPX-DOE-USGS Mount Elbert Gas Hydrate Stratigraphic Test Well. LBNL Report, Berkeley, California. LBNL-4852E.
3. Nakagawa, S., and T.J. Kneafsey (2011), Application of the Split Hopkinson Resonant Bar Test for Seismic Property Characterization of Hydrate-bearing Sand Undergoing Water Saturation. LBNL Report, Berkeley, California. LBNL-5235E.

2010

Energy Resources Peer-Reviewed Journal Articles and Book Chapters for 2010

1. Daley, T.M., F. Niu, P.G. Silver, and E.L. Majer (2010), Acquisition of crosswell seismic monitoring data. LBNL-62400. In: Active Geophysical Monitoring, J. Kasahara, V. Korneev, and M. Zhdanov, eds., Elsevier, 40.
2. Elliott, S.M., M.T. Reagan, G.J. Moridis, P.J. Cameron-Smith (2010), Geochemistry of clathrate-derived methane in Arctic Ocean waters. LBNL-3389E. *Geophysical Research Letters*, 37, L12607; DOI:10.1029/2010GL043369.
3. Kappler, K.N., H.F. Morrison, and G.D. Egbert (2010), Long-term monitoring of ULF electromagnetic fields at Parkfield, CA. LBNL-2806E. *Journal of Geophysical Research–Solid Earth*, 115, B04406; DOI: 10.1029/2009JB006421.
4. Kasahara, J., V. Korneev, and M. Zhdanov (2010), Active Geophysical Monitoring, Elsevier, 40.
5. Kneafsey, T., H. Liu, W. Winters, R. Boswell, R. Hunter, and T.S. Collett (2010), Analysis of core samples from the BPXA-DOE-USGS Mount Elbert gas hydrate stratigraphic test well: Insights into core disturbance and handling. LBNL-2730E. *Journal of Marine and Petroleum Geology*, DOI :10.1016/j.marpetgeo.2009.10.009.
6. Kneafsey, T.J., Y. Seol, A. Gupta, L. Tomutsa (2010), Permeability of laboratory-formed methane-hydrate-bearing sand: Measurements and observations using x-ray computed tomography. LBNL-3997E. *SPE Journal*, SPE-139525-PA; DOI: 10.2118/139525-PA.
7. Korneev, V. (2010), Seismicity precursors of M6.0 2004 Parkfield and M7.0 1998 Loma Prieta Earthquakes. In: Active Geophysical Monitoring, Elsevier, 40, pp. 1–24.
8. Korneev, V., and R. Nadeau (2010), Vibroseis monitoring of San Andreas Fault in California. In: Active Geophysical Monitoring, Elsevier, 40, 437–450.
9. Korneev, V. (2010), Low-frequency fluid waves in fractures and pipes. *Geophysics*, 75 (6), N97–N107. LBNL-4615E.
10. Kowalsky, M.B., S. Nakagawa, and G.J. Moridis (2010), Feasibility of monitoring gas hydrate production with time-lapse VSP. LBNL-3091E. *SPE Journal*, 15 (3), 634–645, SPE-132508-PA; DOI: 10.2118/132508-PA.
11. Newman, G.A., M. Commer, and J.J. Carazzone (2010), Imaging CSEM data in the presence of electrical anisotropy. LBNL-2967E. *Geophysics*, 75, F51; DOI: 10.1190/1.3295883.
12. Rutqvist, J. (2010), Status of the TOUGH-FLAC simulator and recent applications related to coupled fluid flow and crustal deformations. LBNL-4210E. *Computers and Geosciences*, DOI:10.1016/j.cageo.2010.08.006.
13. Shen, P., B. Zhu, X.-B. Li, and Y.-S. Wu (2010), The influence of interfacial tension on water-oil two-phase relative permeability. *Transport in Porous Media*, 85, 505–520; DOI 10.1007/s11242-010-9575-y.
14. Silin, D., and G. Virnovsky (2010), A variational model of disjoining pressure: Liquid film on a nonplanar surface. LBNL-2854E. *Transport in Porous Media*, 82 (3), 485–505; DOI: 10.1007/s11242-009-9424-z.

15. Silin, D., and G. Goloshubin (2010), An asymptotic model of seismic reflection from a permeable layer. LBNL-3086E. *Transport in Porous Media*, 83 (1), 233–256; DOI: 10.1007/s11242-010-9533-8.
16. Silin, D., L. Tomutsa, S. Benson, and T. Patzek (2010), Microtomography and pore-scale modeling of two-phase fluid distribution. LBNL-3999E. *Transport in Porous Media*, 86 (2), 495–515; DOI: 10.1007/s11242-010-9636-2.
17. Stotler, R.L., S.K. Frape, B.M. Freifeld, B. Holden, T.C. Onstott, T. Ruskeeniemi, and E. Chan (2010), Hydrogeology, chemical and microbial activity measurement through deep permafrost. LBNL-3691E. *Ground Water*, published online, DOI: 10.1111/j.1745-6584.2010.00724.x.
18. Wu, Y.-S., M. Ye, and E. Sudicky (2010), Fracture-flow-enhanced matrix diffusion in solute transport through fractured porous media. *Transport in Porous Media*, 81, 21–34; DOI: 10.1007/s11242-009-9383-4.

Energy Resources Conference Papers 2010

1. Ajo-Franklin, J., T. Daley, B. Butler-Veytia, J. Peterson, E. Gasperikova, Y. Wu, and S. Hubbard (2010), Multi-level continuous active source seismic monitoring (ML-CASSM): Application to shallow hydrofracture monitoring. Paper presented at the AGU 2010 Fall Meeting, San Francisco, CA, Dec. 13–17, 2010.
2. Ghezzehei, T. A., and T. J. Kneafsey (2010), Measurements of the capillary pressure-saturation relationship of methane hydrate bearing sediments. Paper presented at the 2010 Offshore Technology Conference, Houston, Texas, USA, May 3–6, 2010.
3. Hutchings, L.J., K. Boyle, and S. Jarpe (2010), Toward high resolution tomography and rock physics interpretation for reservoir properties. Paper presented at the Geothermal Research Council Annual Meeting, Sacramento, California, October 24–27; Geothermal Resources Council Transactions, 34, 863–868.
4. Moridis, G.J., M.T. Reagan, K.L. Boyle, and K. Zhang (2010), Evaluation of a deposit in the vicinity of the PBU L-106 Site, North Slope, Alaska, for a potential long-term test of gas production from hydrates. LBNL-3982E. Paper presented at the SPE Western Regional Meeting, Society of Petroleum Engineers, Anaheim, CA, May 27-29, 2010.
5. Moridis, G.J., T.S. Collett, M. Pooladi-Darvish, S. Hancock, C. Santamarina, R. Boswell, T. Kneafsey, J. Rutqvist, M. Kowalsky, M.T. Reagan, E.D. Sloan, A.K. Sum, and C. Koh (2010), Challenges, uncertainties and issues facing gas production from hydrate deposits in geologic systems. SPE 131792, Paper Presented at the 2010 Unconventional Gas Conference, Keystone, Colorado, February 23–25, 2010.
6. Reagan, M., G. Moridis, S. Elliott, M. Maltrud, and P. Cameron-Smith (2010), Basin-scale simulation of oceanic gas hydrate dissociation in response to climate change. Presented at the AGU Fall Meeting, San Francisco, December 13–17, 2010.
7. Reagan, M.T., M.B. Kowalsky, G.J. Moridis, and S. Silpgarmlert (2010), The effect of reservoir heterogeneity on gas production from hydrate accumulations in the permafrost. SPE-132649, Paper Presented at the SPE Western Regional Meeting, Society of Petroleum Engineers, Anaheim, CA, May 27-29, 2010. LBNL-3981E.
8. Rutqvist, J., C.M. Oldenburg, and P.F. Dobson (2010), Predicting the spatial extent of injection-induced zones of enhanced permeability at the Northwest Geysers EGS Demonstration Project. Paper Presented at the 44th U.S. Rock Mechanics Symposium

- and 5th U.S.-Canada Rock Mechanics Symposium, Salt Lake City, Utah, June 27–30, 2010. LBNL-3347E.
9. Rutqvist J., P.F. Dobson, C.M. Oldenburg, J. Garcia, and M. Walters (2010), The Northwest Geysers EGS Demonstration Project Phase 1: Pre-stimulation coupled geomechanical modeling to guide stimulation and monitoring plans. Paper Presented at The Geothermal Research Council, Annual Meeting, Sacramento, California, October 24–27, 2010; Geothermal Resources Council Transactions, 34, 1243–1250. LBNL-4876E.
 10. Rutqvist, J., and G.J. Moridis (2010), A modeling study of geomechanical performance of sloping oceanic hydrate deposits subjected to production activities. OTC-21048. Paper Presented at the 2010 Offshore Technology Conference held in Houston, TX, May 3–6, 2010.
 11. Viegas, G. and L. J. Hutchings (2010). Source characteristics of micro-earthquakes at the Northwest Geysers Geothermal Field, California. Paper Presented at the Geothermal Research Council Annual Meeting, Sacramento, California, October 24–27, (2010); Geothermal Resources Council Transactions, 34, 1265–1272.

Energy Resources Reports 2010

1. Finsterle, S. (2010), iTOUGH2 Universal Optimization Using the PEST Protocol. LBNL-3698E. LBNL Report, Berkeley, CA.
2. Kneafsey, T.J., E.V.L. Rees, S. Nakagawa, and T.-H. Kwon (2011), Examination of Hydrate Formation Methods: Trying to Create Representative Samples. LBNL-4845E. LBNL Report, Berkeley, California
3. Silin, D. T.J. Kneafsey, J.B. Ajo-Franklin, and P. Nico (2010), Pore-scale mechanisms of gas flow in tight sand reservoirs. LBNL-4103E. LBNL Report, Berkeley, CA.

2009

Energy Resources Peer-Reviewed Journal Articles and Book Chapters for 2009

1. Boswell, R., D. Shelander, M. Lee, T. Latham, T. Collett, G. Guerin, G. Moridis, M. Reagan, and D. Goldberg, Occurrence of gas hydrate in Oligocene Frio sand: Alaminos Canyon Block 818: Northern Gulf of Mexico. LBNL-2541E. Marine and Petroleum Geology, 26, 1499–1512, 2009.
2. Commer, M., and G. A. Newman, Three-dimensional controlled-source electromagnetic and magnetotelluric joint inversion. LBNL-1757E. Geophysics Journal International, 178 (3), 1305–1316, 2009.
3. Freifeld, B.M., The U-tube: A new paradigm in borehole fluid sampling. LBNL-3741E. Scientific Drilling, 8, doi:10.2204/iodp.sd.8.07, 2009.
4. Gok, R., L. Hutchings, K. Mayeda, and D. Kalafat, Source parameters for 1999 North Anatolian fault zone aftershocks. Pure and Applied Geophysics, 166, 547–566, 2009.
5. Gupta, A., G.J. Moridis, T.J. Kneafsey, and E.D. Sloan, Jr., Modeling pure methane hydrate dissociation using a numerical simulator from a novel combination of X-ray

- computed tomography and macroscopic data. LBNL-2749E. *Energy & Fuels*, 23 (12), 5958–5965, DOI:10.1021/ef9006565, 2009.
- 6. Holtzman, R., D.B. Silin, and T.W. Patzek, Frictional granular mechanics: A variational approach. LBNL-3123E. *International Journal for Numerical Methods in Engineering*, 81 (10), 1259–1280, (published online 2009), 2010.
 - 7. Holtzman, R., D.B. Silin, and T.W. Patzek, Mechanical properties of granular materials: A variational approach to grain-scale simulations. LBNL-1527E. *International Journal for Numerical and Analytical Methods in Geomechanics*, 33 (3), 391-404, 2009.
 - 8. Jordan, P.D., and S.M. Benson, Well blowout rates in Oil and Gas District 4: Update and trends. LBNL-2989E. *Exploration and Production: Oil and Gas Review*, 7 (2), 59–60, 2009.
 - 9. Jordan, P.D., and S. M. Benson, Well blowout rates and consequences in California Oil and Gas District 4 from 1991 to 2005: Implications for geological storage of carbon dioxide. LBNL-745E. *Environmental Geology*, 57, 1103–1123, 2009.
 - 10. Kneafsey, T., Hailong Lu, W. Winters, R. Boswell, R. Hunter, and T.S. Collett, Analysis of core samples from the BPXA-DOE-USGS Mount Elbert gas hydrate stratigraphic test well: Insights into core disturbance and handling. LBNL-2730E. *Journal of Marine and Petroleum Geology* (published online 2009), 2010.
 - 11. Kneafsey, T.J. and K. Pruess, Laboratory flow experiments for visualizing carbon dioxide-induced, density-driven brine convection. LBNL-2731E. *Transport in Porous Media: Special Issue on Geologic Carbon Storage* (published online 2009), DOI 10.1007/s11242-009-9482-2, Springer, 2010.
 - 12. Kneafsey, T.J., Y. Seol, G.J. Moridis, L. Tomutsa, and B.M. Freifeld, Laboratory measurements on core-scale sediment and hydrate samples to predict reservoir behavior. LBNL-59085. In: *Natural Gas Hydrates—Energy Resource Potential and Associated Geologic Hazards*, T. Collett, A. Johnson, C. Knapp, and R. Boswell, eds., AAPG Memoir 89, pp. 705–713, 2009.
 - 13. Korneev, V., Resonant seismic emission of subsurface objects. LBNL-2357E. *Geophysics*, 74 (2), T47–T43, 2009.
 - 14. Moridis, G. J., S. Silpgarmlert, M. T. Reagan, T.S. Collett, and K. Zhang (2010), Gas production from a cold, stratigraphically bounded hydrate deposit at the Mount Elbert Site, North Slope, Alaska. LBNL-3005E. *Marine and Petroleum Geology* (in press, available online 2009, DOI: 10.1016/j.marpetgeo.2010.01.005) 2010.
 - 15. Moridis, G., and M.T. Reagan, Gas production from Class 2 hydrate accumulations in the permafrost, 1. System description and base case. LBNL-1615E. *J. Pet. Sci. Eng.*, SPE 110858, (in press, published online 2009, DOI: 10.2118/110858-MS) 2010.
 - 16. Moridis, G., and M.T. Reagan, Gas production from Class 2 hydrate accumulations in the permafrost, 2. Sensitivity analysis. *Journal of Petroleum Science and Engineering* (in press, published online, DOI: 10.4043/19554-MS), 2010.
 - 17. Moridis, G., and M.T. Reagan, Gas production from Class 2 hydrate accumulations in the permafrost. LBNL-1615E. *SPE Journal*, SPE 110858, 2009.
 - 18. Moridis, G.J., M.T. Reagan, S.-J. Kim, Y. Seol, and K. Zhang, Evaluation of the gas production potential of marine hydrate deposits in the Ulleung Basin of the Korean East Sea. LBNL-63812. *SPE Journal*, SPE-110859-PA, DOI: 10.2118/110859-PA, 2009.

19. Moridis, G., T. Collette, R. Boswell, M. Kurihara, M.T. Reagan, C. Koh, and E.D. Sloan, Toward production from gas hydrates: Assessment of resources, technology, and potential. LBNL-161E. SPE Journal, SPE 114163, DOI: 10.2118/114163-MS 2009.
20. Newman, G.A., M. Commer, and J.J. Carazzone, Imaging CSEM data in the presence of electrical anisotropy. LBNL-2967E. Geophysics (in press, published online 2009, doi:10.1088/1742-6596/180/1/012063), 2010.
21. Newman, G.A., and M. Commer, Massively parallel electrical conductivity imaging of the subsurface: Applications to hydrocarbon exploration. LBNL-2052E. Journal of Physics, Conference Series, 180, 012063, doi:10.1088/1742-6596/180/1/012063, 2009.
22. Priest, J.A., E.V.L. Rees, and C.R.I. Clayton, Influence of gas hydrate morphology on the seismic velocities of sands. Journal of Geophysical Research, 114, B11205, 2009.
23. Reagan, M.T., and G.J. Moridis, Large-scale simulation of methane dissociation along the West Spitzbergen Margin. LBNL-2908E. Geophysical Research Letters, 36, L23612, doi:10.1029/2009GL041332, 2009.
24. Rutqvist, J., and G.J. Moridis, Numerical studies on the geomechanical stability of hydrate-bearing sediments. LBNL-62759. SPE Journal, SPE-126129, 14(2), 267–282, 2009.
25. Rutqvist, J., G.J. Moridis, T. Grover, and T. Collett, Geomechanical response of permafrost-associated hydrate deposits to depressurization-induced gas production. LBNL-1614E. Journal of Petroleum Science and Engineering, 67, doi: 10.1016/j.petrol.2009.02.013, 1–12, 2009.
26. Scognamiglio, L. and L. Hutchings, A test of a physically-based strong ground motion prediction methodology with the 27 September 1997, $M_w = 6.0$ Colfiorito (Umbria-Marche sequence), Italy, earthquake. Tectonophysics, 476, 145–158, 2009.
27. Seol, Y. and T.J. Kneafsey, X-ray computed-tomography observations of water flow through anisotropic methane hydrate-bearing sand. LBNL-2716E. Journal of Petroleum Science and Engineering, 66, 121–132, doi:10.1016/j.petrol.2009.01.008, 2009.
28. Waite, W., C. Santamarina, D. Cortes, B. Dugan, N. Espinoza, J. Germaine, J. Jang, J. Jung, T.J. Kneafsey, H. Shin, K. Soga, W. Winters, and T-S. Yun, Physical properties of hydrate-bearing sediments. Review of Geophysics, 47, RG4003, doi:10.1029/2008RG000279, 2009.
29. Walsh, M.R., S.H. Hancock, S.J. Wilson, S.L. Patil, G.J. Moridis, R. Boswell, T.S. Collett, C.A. Koh and E.D. Sloan, Preliminary report on the commercial viability of gas production from natural gas hydrates. Energy Economics, 31(5), 815–823 (doi: 10.1016/j.eneco.2009.03.006), 2009.
30. Xu, T., P. Rose, S. Fayer, and K. Pruess, On modeling of chemical stimulation of an enhanced geothermal system using a high pH solution with chelating agent. LBNL-2057E. Geofluids, 9, 167–177, 2009.

Energy Resources Conference Papers 2009

1. Boyle, K., and L.J. Hutchings, Automated processing and high resolution event location at the Salton Sea Geothermal Reservoir. Geothermal Res. Council, Transactions, 16, Annual Meeting, Reno, NV, 2009.

2. Freeman, C.M., G.J. Moridis, D. Ilk and T. Blasingame, A numerical study of microscale flow behavior in tight gas and shale gas reservoir systems. In: Moridis, G., C. Doughty, S. Finsterle, and E. Sonnenthal (eds.), Proceedings of the TOUGH Symposium 2009 (LBNL-2790E), LBNL, Berkeley, CA, Sept. 14–16, 2009.
3. Freifeld, B.M., E. Perkins, J. Underschultz, and C. Boreham, The U-tube sampling methodology and real-time analysis of geofluids. LBNL-1762E. International Applied Geochemistry Symposium (IAGS2009), Fredericton, New Brunswick, Canada, June 2009.
4. Gupta, I., G. Jones, and E. Sonnenthal, Reaction transport models of structurally controlled hydrothermal dolomite in carbonate reservoirs. In: Moridis, G., C. Doughty, S. Finsterle, and E. Sonnenthal (eds.), Proceedings of the TOUGH Symposium 2009 (LBNL-2790E), LBNL, Berkeley, California, September 14–16, 2009.
5. Jung, Y., P. Imhoff, and S. Finsterle, Estimation of landfill gas generation rates and gas permeability field of refuse using inverse modeling. In: Moridis, G., C. Doughty, S. Finsterle, and E. Sonnenthal (eds.), Proceedings of TOUGH Symposium 2009 (LBNL-2790E), LBNL, Berkeley, California, September 14–16, 2009.
6. Korneev, V., A.A. Ponomarenko, and B.M. Kashtan, Stoneley guided waves: What is missing from Biot's Theory? In: Poromechanics IV, H.I. Ling, A. Smith, and Raimondo Betti, eds., Fourth Biot Conference on Poromechanics, Columbia University, New York, New York, DEStech Publications Inc., June 8–10, 2009.
7. Korneev, V., A.A. Ponomarenko, and B.M. Kashtan, Stoneley guided waves: What is missing from Biot's Theory? In: Poromechanics IV, H.I. Ling, A. Smith, and Raimondo Betti, eds., Fourth Biot Conference on Poromechanics, Columbia University, New York, New York, DEStech Publications Inc., June 8–10, 2009.
8. Moridis, G.J., Reagan, M.T., Boyle, K.L., and K. Zhang. Evaluation of the gas production potential of challenging hydrate deposit. In: Moridis, G., C. Doughty, S. Finsterle, and E. Sonnenthal (eds.), Proceedings of the TOUGH Symposium 2009 (LBNL-2790E), LBNL Report, Berkeley California, September 14–16, 2009.
9. Reagan, M.T., G.J. Moridis, and Keni Zhang, Large-scale simulation of oceanic gas hydrate dissociation in response to climate change. In: Moridis, G., C. Doughty, S. Finsterle, and E. Sonnenthal (eds.), Proceedings of the TOUGH Symposium 2009 (LBNL-2790E). Earth Sciences Division, Lawrence Berkeley National Laboratory, Berkeley, California, September 14–16, 2009.
10. Reagan, M.T., G.J. Moridis, and Keni Zhang, Large-scale simulation of oceanic gas hydrate dissociation in response to climate change. In: Moridis, G., C. Doughty, S. Finsterle, and E. Sonnenthal (eds.), Proceedings of the TOUGH Symposium 2009 (LBNL-2790E). Earth Sciences Division, Lawrence Berkeley National Laboratory, Berkeley, California, September 14–16, 2009.
11. Silin, D., and T. Patzek, Predicting relative-permeability curves directly from rock images. SPE Paper 124974, Presented at the SPE Annual Technical Conference and Exhibition, New Orleans, Louisiana, Society of Petroleum Engineers, October 4–7, 2009.
12. Silin, D, and G. Robin, Combining step-rate well test with transient pressure test: Is it possible? SPE Paper 121524, Presented at the 2009 SPE Western Regional Meeting, San Jose, California, March 24–26, 2009.

13. Wu, Y.S., G.J. Moridis, B. Bai, and K. Zhang, A multi-continuum model for gas production in tight fractured reservoirs. Paper SPE 118944, Presented at the 2009 SPE Hydraulic Fracturing Technology Conference, January 19–21, 2009.
14. Xu, T., E. Sonnenthal, N. Spycher, G. Zhang, L. Zheng, and K. Pruess, TOUGHREACT Version 2.0. In: Moridis, G., C. Doughty, S. Finsterle, and E. Sonnenthal (eds.), Proceedings of the TOUGH Symposium 2009 (LBNL-2790E). Earth Sciences Division, Lawrence Berkeley National Laboratory, Berkeley, California, September 14–16, 2009.
15. Zhang, K., G.J. Moridis, Y.-S. Wu, and K. Pruess, A domain decomposition approach for large-scale simulations of flow processes in hydrate-bearing geologic media. LBNL-1576E. Proceedings of the 6th International Conference on Gas Hydrates, April 2009.

Energy Resources Reports 2009

1. Foxall, B., and D. Vasco, Inversion of synthetic aperture radar interferograms for sources of subsidence at the Dixie Valley geothermal field. LBNL-63546. LBNL Report, Berkeley, California, 2009.
2. Korneev, V., Spherical Wave Propagation in a Nonlinear Elastic Medium. LBNL-2509E. LBNL Report, Berkeley, California, 2009.
3. Silin, D., and T. Patzek, A pore-scale model of two-phase flow in water-wet rock. LBNL-1569E. LBNL Report, Berkeley, California. 2009.
4. Silin, D., and G. Goloshubin, A low-frequency asymptotic model of seismic reflection from a permeable layer. LBNL-1634E. Berkeley Lab Report, Berkeley, CA, March 2009.

2008

Energy Resources Peer-Reviewed Journal Articles and Book Chapters for 2008

1. Bakulin, A.V., and V.A. Korneev, Acoustic signatures of cross-flow behind casing in commingled reservoirs: A case study from Teapot Dome. *Geophysics*, 73 (4), 1–8, doi:10.1190/1.2940154, 2008.
2. Commer, M., and G. A. Newman, New advances in three-dimensional controlled-source electromagnetic inversion. LBNL-63010. *Geophysical Journal International*, 172, 513–535, 2008.
3. Commer, M., G.A. Newman, J.J. Carazzone, T.A. Dickens, K.E. Green, L.A. Wahrmund, D.E. Willen, and J. Shiu, Massively parallel electrical-conductivity imaging of hydrocarbons using the BlueGene/L supercomputer. LBNL-63009. *IBM Journal of Research and Development*, 52 (1/2), 93–103, doi:10.1147/rd.521.0093, 2008.
4. Kiryukhin, A.V., N.P. Asaulova, and S. Finsterle, Inverse modeling and forecasting for the exploitation of the Pauzhetsky geothermal field, Kamchatka, Russia. LBNL-651E. *Geothermics*, 37, 540–562, doi:10.1016/j.geothermics.2008.04.003, 2008.
5. Kolker, A.M., B.M. Kennedy, and R.J. Newberry, Evidence for a crustal heat source for low-temperature geothermal systems in the Central Alaskan Hot Springs Belt. *Transactions of the Geothermal Research Council*, 32, 225–230, 2008.

6. Korneev, V., Slow waves in fractures filled with viscous fluid. LBNL-63821. *Geophysics*, 73 (1), 2008.
7. Newman, G.A., E. Gasperikova, G.M. Hoversten, and P.E. Wannamaker, 3D magnetotelluric characterization of the Coso Geothermal Field. LBNL-58328. *Geothermics*, 37, 369–399, 2008.
8. Niu, F., P.G. Silver, T.M. Daley, E.L. Majer, and X. Cheng, Preseismic velocity changes observed from active source monitoring at the Parkfield SAFOD Drill Site. LBNL-717E. *Nature*, 454, 204–208, DOI: 10.1038/nature07111, 2008.
9. Niu, F., P. Silver, T. Daley, R. Nadeau, T. Taira, X. Cheng, E. Majer, Seismic imaging of stress transient. *Eos Transactions, AGU*, 89 (53), 2008.
10. Pride, S. R., E.G. Flekkey, and O. Orsjo, Seismic stimulation for enhanced oil recovery. LBNL-61828. *Geophysics*, 73 (5), doi:10.1190/1.2968090, 2008.
11. Pruess, K., On the production behavior of enhanced geothermal systems with CO₂ as working fluid. LBNL-63355. *Energy Conversion and Management*, 49, doi:10.1016/j.enconman.2007.12.029, 2008.
12. Reagan, M.T., and G.J. Moridis, The dynamic response of oceanic hydrate deposits to ocean temperature change. LBNL-1026E. *Journal of Geophysical Research—Oceans*, 113, C12023, doi:10.1029/2008JC004938, 2008.
13. Vasco, D. W., and H. Keers, Seismic imaging of reservoir flow properties: Resolving water influx and reservoir permeability. LBNL-63532. *Geophysics*, 73 (1), doi:10.1190/1.2789395, 2008.

Energy Resources Conference Papers 2008

1. Freifeld, B., T. Onstott, E. Chan, L. Pratt, A. Johnson, R. Stotler, B. Holden, S. Frape, S. Piffner, S. DiFurio, Deployment of a deep borehole observatory at the High Lake Project Site, Nunavut, Canada. LBNL-78E. 9th International Permafrost Conference, U.S. Permafrost Association, Fairbanks, Alaska, June 29–July 3, 2008.
2. Goloshubin, G., D. Silin, V. Vingalov, and G.V. Takkand, Reservoir average permeability from seismic and log data. Paper A012, Presented at the European Association of Geoscientists & Engineers Conference, St. Petersburg, Russia, 2008.
3. Grover, T., G.J. Moridis and S. Holditch, Analysis of reservoir performance of the Messoyakha Hydrate Reservoir. Paper SPE 114375, Proc. 2008 SPE Annual Technical Conference and Exhibition, Denver, Colorado, September 21–24, 2008.
4. Gullapalli, I., G.J. Moridis, S. Silpgarmlert, B. Reik, M. Kamal, E. Jones and T. Collett, Designing a Reservoir Flow Rate Experiment for the GOM Hydrate JIP Leg II LWD Drilling. Paper Presented at the 6th International Conference on Gas Hydrates, Vancouver, British Columbia, Canada, July 6–10, 2008.
5. Holtzman, R., D.B. Silin, and T. W. Patzek: Micromechanics of hydrate dissociation in marine sediments by grain-scale simulations. Paper SPE 114223, Presented at SPE Western Regional and Pacific Section AAPG Joint Meeting, Bakersfield, California, March 29–April 2, 2008.
6. Kneafsey, T.J., Y. Seol, A. Gupta, and L. Tomutsa, Permeability of laboratory-formed methane-hydrate-bearing sand. OTC 19536-PP, 2008 Offshore Technology Conference held in Houston, Texas, May 5–8, 2008.

7. Kneafsey, T.J., K. Pruess, and N. Spycher, Preliminary experimental investigation of water injection to reduce non-condensable and corrosive gases in steam produced from vapor-dominated reservoirs. Proceedings, 33rd Workshop on Geothermal Reservoir Engineering, Stanford University, Stanford, California, SGP-TR-185, January 28–30, 2008.
8. Moridis, G.J., M.T. Reagan, and K. Zhang, Field-scale studies on the enhanced performance of Class 2 and Class 3 hydrate deposits through co-production with conventional gas. OTC 19435, Proceedings of the 2008 Offshore Technology Conference, Houston, Texas, May 5–8, 2008.
9. Moridis, G., M. T. Reagan, and K. Zhang, The use of horizontal wells in gas production from hydrate accumulations. LBNL-708E. 6th International Conference on Gas Hydrates, ICGH/University of British Columbia, Vancouver, BC. 2008.
10. Nakagawa, S., T.J. Kneafsey, and G.J. Moridis, Mechanical strength and seismic property measurements of hydrate-bearing sediments (HBS) during hydrate formation and loading tests. OTC 19559, 2008 Offshore Technology Conference, Houston, Texas, May 5–8, 2008.
11. Reagan, M.T., George J. Moridis, and Kenei Zhang, Sensitivity analysis of gas production from Class 2 and Class 3 hydrate deposits. LBNL-1657E. OTC 19554, 2008 Offshore Technology Conference, Society of Petroleum Engineers, Houston, TX. May 5–8, 2008.
12. Reagan, M. T., and G.J. Moridis, Modeling of oceanic gas hydrate instability and methane release in response to climate change. LBNL-712E. 6th International Conference on Gas Hydrates, ICGH/University of British Columbia, Vancouver, BC. 2008.
13. Rutqvist, J., and G. Moridis, Development of a numerical simulator for analyzing the geomechanical performance of hydrate-bearing sediments. LBNL-467E. 42th U.S. Rock Mechanics Symposium, ARMA, San Francisco, CA, June 29–July 2, 2008.
14. Rutqvist, J., and C. M. Oldenburg, Analysis of injection-induced micro-earthquakes in a geothermal steam reservoir, Geysers Geothermal Field, California. LBNL-468E. 42th U.S. Rock Mechanics Symposium, ARMA, San Francisco, CA. 2008.
15. Rutqvist, J., and G. Moridis, Development of a numerical simulator for analyzing the geomechanical performance of hydrate-bearing sediments. LBNL-467E. 42th U.S. Rock Mechanics Symposium, ARMA, San Francisco, CA, June 29–July 2, 2008.
16. Rutqvist, J., and C. M. Oldenburg, Analysis of injection-induced micro-earthquakes in a geothermal steam reservoir, Geysers Geothermal Field, California. LBNL-468E. 42th U.S. Rock Mechanics Symposium, ARMA, San Francisco, CA. 2008.
17. Rutqvist, J., G.J. Moridis and T. Grover, Coupled Hydrologic, Thermal and Geomechanical Analysis of Well Bore Stability in Hydrate-Bearing Sediments. OTC 19572, 2008 Offshore Technology Conference, Houston, Texas, May 5–8, 2008.
18. Seol, Y., and T.J. Kneafsey, Fluid flow through heterogeneous methane hydrate bearing sand: observations using x-ray CT scanning. Proceedings of the 6th International Conference on Gas Hydrates (ICGH 2008), Vancouver, British Columbia, July 6–10, 2008.
19. Silin, D., and G. Goloshubin, Seismic wave reflection from a permeable layer: Low-frequency asymptotic analysis. Paper IMECE2008-67565, Proceedings of IMECE 2008, ASME International Mechanical Engineering Congress and Exposition, Boston, MA, October 31–November 6, 2008.

20. Urosevic, M., A. Kepic, D. Sherlock, T. Daley, B. Freifeld, S. Sharma, and K. Dodds, Application of geophysical monitoring within the Otway Project, SE Australia. Paper SS 6.6, Society of Exploration Geophysicists Annual Meeting, November 10–14, 2008.
21. Wu, Y.-S., Ming Ye and E. A. Sudicky, Fracture-flow-enhanced solute diffusion into fractured rock. LBNL-63700. Thirty-Third Workshop on Geothermal Reservoir Engineering, Stanford University, Stanford, CA, January 28–30, 2008.
22. Xu, T., Numerical studies of fluid-rock interactions in Enhanced Geothermal Systems (EGS) with CO₂ as working fluid, 33rd Workshop on Geothermal Engineering, Stanford, CA., 2008.
23. Zhang, K., G.J. Moridis, Y.-S. Wu, and K. Pruess, A domain decomposition approach for large-scale simulations of flow processes in hydrate-bearing geologic media. LBNL-1576E. Proceedings of the 6th International Conference on Gas Hydrates (ICGH 2008), 2008.

Energy Resources Reports 2008

1. Kappler, K.N., Automated time-domain spike identification for MT data. Berkeley Seismological Laboratory Annual, 2008.
2. Moridis, G., M. B. Kowalsky, and K. Pruess, TOUGH+Hydrate v1.0 User's Manual: A code for the simulation of system behavior in hydrate-bearing geologic media. LBNL-149E. LBNL Report, Berkeley, California. 2008.
3. Zhang, K., TMVOC-MP: A parallel numerical simulator for three-phase nonisothermal flows of multicomponent hydrocarbon mixtures in porous/fractured media. LBNL-63827. LBNL Report, Berkeley, CA. 2008.
4. Zhang, K., Y.-S. Wu, and K. Pruess, User's Guide for TOUGH2-MP—A Massively Parallel Version of the TOUGH2 Code. LBNL-315E. LBNL Report, Berkeley, CA, 2008.

2007